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ORGANIC BIOSIGNATURES IN ANTARCTIC SANDSTONE

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Cryptoendolithic microorganisms of Antarctic Dry Valleys are widely regarded as an analog for life on Mars. Previous studies of biosignatures in this system are focused largely on the surface layer of the colonized sandstone, where the organisms are contained. We report that nitrogenous organic compounds, presumably excreted by microorganisms, are present in the rock interior. In the 10 mm wide zone immediately below the organisms, they amount to 25  $\mu\text{g N}$  per gram of rock, which is only slightly lower in comparison to the colonized layer. Of the five amino acids extracted (aspartate, glutamate, serine, alanine, and valine), all are significantly racemized, except for valine, indicating a significant elapse of time since their production. These results suggest that these organic compounds, although originating from near the rock surface, can be readily preserved in the rock interior because of the absence of biology. A more detailed study involving a series of samples taken at various depths up to 1.5 meters is underway.